

architecture. In order to provide additional context for various aspects of the present invention, **FIG. 7** and the following discussion are intended to provide a brief, general description of a suitable computing environment **700** in which the various aspects of the present invention may be implemented. While the invention has been described above in the general context of computer-executable instructions that may run on one or more computers, those skilled in the art will recognize that the invention also may be implemented in combination with other program modules and/or as a combination of hardware and software. Generally, program modules include routines, programs, components, data structures, etc., that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the inventive methods may be practiced with other computer system configurations, including single-processor or multiprocessor computer systems, minicomputers, mainframe computers, as well as personal computers, hand-held computing devices, microprocessor-based or programmable consumer electronics, and the like, each of which may be operatively coupled to one or more associated devices. The illustrated aspects of the invention may also be practiced in distributed computing environments where certain tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

[0316] With reference again to **FIG. 7**, there is illustrated an exemplary environment **700** for implementing various aspects of the invention includes a computer **702**, the computer **702** including a processing unit **704**, a system memory **706** and a system bus **708**. The system bus **708** couples system components including, but not limited to the system memory **706** to the processing unit **704**. The processing unit **704** may be any of various commercially available processors. Dual microprocessors and other multiprocessor architectures also can be employed as the processing unit **704**.

[0317] The system bus **708** can be any of several types of bus structure including a memory bus or memory controller, a peripheral bus and a local bus using any of a variety of commercially available bus architectures. The system memory **706** includes read only memory (ROM) **710** and random access memory (RAM) **712**. A basic input/output system (BIOS), containing the basic routines that help to transfer information between elements within the computer **702**; such as during start-up, is stored in the ROM **710**.

[0318] The computer **702** further includes a hard disk drive **714**, a magnetic disk drive **716**, (e.g., to read from or write to a removable disk **718**) and an optical disk drive **720**, (e.g., reading a CD-ROM disk **722** or to read from or write to other optical media). The hard disk drive **714**, magnetic disk drive **716** and optical disk drive **720** can be connected to the system bus **708** by a hard disk drive interface **724**, a magnetic disk drive interface **726** and an optical drive interface **728**, respectively. The drives and their associated computer-readable media provide nonvolatile storage of data, data structures, computer-executable instructions, and so forth. For the computer **702**, the drives and media accommodate the storage of broadcast programming in a suitable digital format. Although the description of computer-readable media above refers to a hard disk, a remov-

able magnetic disk and a CD, it should be appreciated by those skilled in the art that other types of media which are readable by a computer, such as zip drives, magnetic cassettes, flash memory cards, digital video disks, cartridges, and the like, may also be used in the exemplary operating environment, and further that any such media may contain computer-executable instructions for performing the methods of the present invention.

[0319] A number of program modules can be stored in the drives and RAM **712**, including an operating system **730**, one or more application programs **732**, other program modules **734** and program data **736**. It is appreciated that the present invention can be implemented with various commercially available operating systems or combinations of operating systems.

[0320] A user can enter commands and information into the computer **702** through a keyboard **738** and a pointing device, such as a mouse **740**. Other input devices (not shown) may include a microphone, an IR remote control, a joystick, a game pad, a satellite dish, a scanner, or the like. These and other input devices are often connected to the processing unit **704** through a serial port interface **742** that is coupled to the system bus **708**, but may be connected by other interfaces, such as a parallel port, a game port, a universal serial bus ("USB"), an IR interface, etc. A monitor **744** or other type of display device is also connected to the system bus **708** via an interface, such as a video adapter **746**. In addition to the monitor **744**, a computer typically includes other peripheral output devices (not shown), such as speakers, printers etc.

[0321] The computer **702** may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer(s) **748**. The remote computer(s) **748** may be a workstation, a server computer, a router, a personal computer, portable computer, microprocessor-based entertainment appliance, a peer device or other common network node, and typically includes many or all of the elements described relative to the computer **702**, although, for purposes of brevity, only a memory storage device **750** is illustrated. The logical connections depicted include a local area network (LAN) **752** and a wide area network (WAN) **754**. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

[0322] When used in a LAN networking environment, the computer **702** is connected to the local network **752** through a network interface or adapter **756**. The adaptor **756** may facilitate wired or wireless communication to the LAN **752**, which may also include a wireless access point disposed thereon for communicating with the wireless adaptor **756**. When used in a WAN networking environment, the computer **702** typically includes a modem **758**, or is connected to a communications server on the LAN, or has other means for establishing communications over the WAN **754**, such as the Internet. The modem **758**, which may be internal or external, is connected to the system bus **708** via the serial port interface **742**. In a networked environment, program modules depicted relative to the computer **702**, or portions thereof, may be stored in the remote memory storage device **750**. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.